



## Age, proximity to death and future demands on (National) Health Services.

There are frequently expressed concerns about the impact of an ageing population on future health spending because it has long been evident that there is a relationship between age and health expenditure. Countless studies have established that health spending by age follows a u shaped curve, high at the beginning and end of life, with some evidence that this has become more pronounced over time.

The Health Economics Research Centre at the Department of Public Health, University of Oxford has been drilling down into the data on ageing populations and health spending. Their research suggests that in both the past and probably in the future, demographic change is not a particularly important factor in increasing health expenditure. Intensity of use and technical change are much more important, especially in older age groups.

Alistair Gray and Meena Seshamani from the Research Centre presented their findings around this theme to a number of conferences in Europe during 2002. Their presentations can be found at [www.ihs.ox.ac.uk/herc](http://www.ihs.ox.ac.uk/herc).

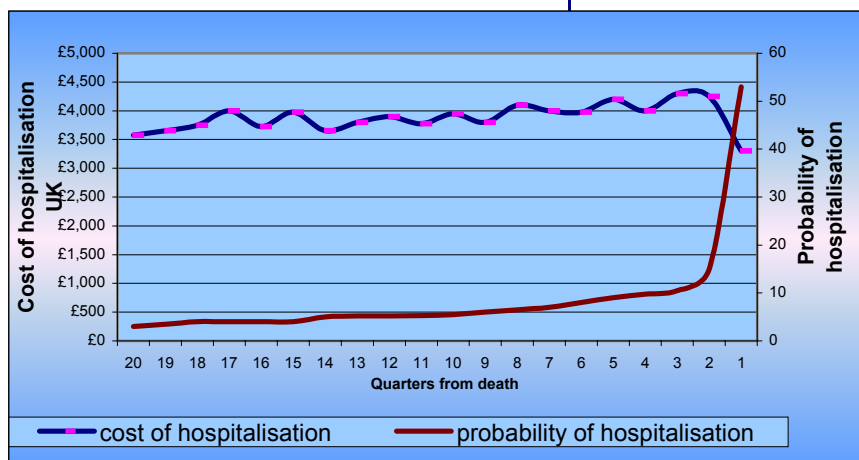
They report that the epidemiological debate is now focussing on morbidity as the crucial dimension of ageing. They note there are repeated findings that health expenditure is heavily concentrated towards the end of life. In England, Canada and USA, patients in the last year of life cost up to six times more than patients not at the end of life. In the USA, 5.9% of Medicare recipients die in a given year yet they comprise up to 30% of Medicare expenditure.

They ask, has the question on age and health care costs been mis-specified? Given that health expenditure increases with age and the probability of dying increases with age, health expenditures are obviously concentrated near the end of life. They suggest that the question should be, "are increased healthcare costs due to patient age, or increasing proximity to death?"

The Oxford team set out to validate research in Switzerland by Zweifel et al (1999) where Swiss health insurance data was used to follow patients for two years prior to death. This research modelled quarterly healthcare expenditure as a function of patient age and quarter from death. The Swiss study found that the quarter from death but not the patient age significantly affects health care costs. The Swiss study only covered a period two to five years prior to death and was limited by a relatively small sample size. It did not address potential interactions between age and time of death.

### Inside this Issue

Age, proximity to death and future demands on (National) Health Services.	1
Calculating the value of health care	3
Committee Profile	4
NZ Doctor Prize winner announced	4
Upcoming events	4



Effect of proximity of death on probability and conditional cost of hospitalisation

(Continued on page 2)

(Continued from page 1)

First, the Oxford team analysed data from four countries, Australia, Canada, Japan and the United Kingdom (England and Wales). For Japan, Canada and Australia, per capita health expenditure increased fastest among those aged 65 and over at up to twice the increases of ages 45 to 64. On the other hand, in the UK those aged 65 and over experienced one third of the cost increase of age 45 to 64. Hence, in the UK, the proportion of national health expenditure allocated to the population aged 65 and over decreased from 40% to 35% while increasing up to 10 percentage points in other countries. Demographic shifts and population growth predicted only 18% of the observed increases in health care expenditure in the UK, compared to 68%, 44%, and 34% for Japan, Canada and Australia respectively. Therefore, these differential changes in costs for older age groups over time show that the assumption of a constant age-cost relationship can lead to inaccurate expenditure projections.

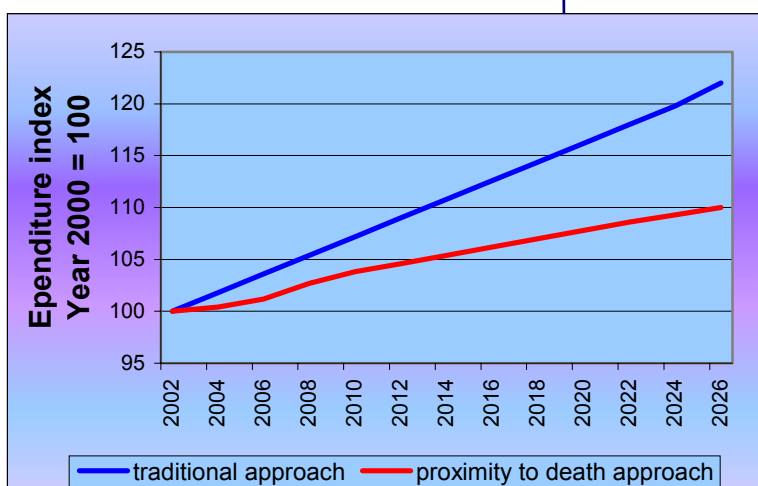
Next they took the Oxford Record Linkage Study, which since 1963 links all general and psychiatric hospital inpatient and day case episodes and death records of each individual in Oxfordshire. Hospital and death records from 1970 to 1999 were extracted for all patients who were 65 and over in 1970. Patients without a death record were eliminated from analysis due to their probable migration from the data region. As a large numbers of non users skewed the data, quarterly hospital costs were modelled in two parts, first the probability of being in hospital at all, and then the costs among patients that are in hospital. Costs used were 1997 –99 speciality specific costs per day from the Department of Health.

Results of the study showed that:

- When compared with cancer or respiratory illness, heart disease was associated with a lower probability of being in hospital and lower costs once in hospital. Possibly through more treatments being outside hospitals.
- Later calendar years had a higher probability of being in hospital, but lower costs once in hospital. This reflected changing practice patterns and patient management, probably through shifting patients to long term care settings.
- Gender was insignificant. Non manual social classes had lower costs once in hospital than manual social classes.
- Admission from a long term care facility and discharge to another hospital were more expensive than other sources of admission or discharge

Next, the estimates drawn from the Oxfordshire study were applied to population projections for England to 2040 – age, sex and proximity to death and compared with the results of traditional analyses based on age specific health expenditure. When charted, significant differences are apparent (see right).

The implications and conclusions they draw from this study are that in relation to health expenditure age is, in part, a red herring – proximity to death is more important and is in line with their compression of morbidity hypothesis. However, they caution the pattern may be different when applied to primary care, social care and long term care and proximity to death is itself a proxy for disease progression. Finally, it is important to recall that intensity of use and technological changes remain dominant influences on health expenditures.



Projecting impact of demographic change on aggregate hospital costs, “traditional” versus proximity to death models 2002 – 2026

#### References

- Gray A. and Seshamani M. (2002) *Age, proximity to death and future demands on the National Health Service*, Presentation to the OHE Conference, Building on Wanless, 13 November 2002
- Zweifel P., Felder S. and Meier M. (1999) *Ageing of population and health care expenditure: A red herring?* Health Economics 8, 485-496

## Calculating the value of health care

Valuation is used in health economics to determine the value people place on life and health status. It is a useful tool for decision makers faced with allocation decisions; however, economic analysis may yield different policy recommendations depending upon which valuation method is used. When reading reports quoting value of health care a reader needs to question and consider the techniques used to draw that valuation.

Valuation is a process of eliciting responses to preference questions using techniques such as willingness to pay, standard gamble, and time trade off. But how reliable are these techniques? In a working paper *Valuing Health Care Benefits: A discussion of influences on responses to preference citation questions*, Stirling Bryan, Cam Donaldson and Andrew Lloyd categorise and evaluate the potential influences on health care benefit valuations.

While all valuation techniques commonly used in health economics are covered in the paper the focus is on choice based techniques. A distinction is drawn between factors seen as appropriate influences and those seen as inappropriate. The authors conclude that there are many possible sources of bias in all preference-elicitation exercises including contextual issues, reference points, and the scales. They note that there has been relatively little discussion in the literature on biases relating to the scales used to infer value.

For example, with time trade off, the raw responses to the questions represent a combination of preferences for avoidance of the health state as well as preferences over time. The trade preference component of the time trade off valuation represents a source of bias. Given that economic evaluations typically discount future costs and benefits, the authors express concern that some double counting of time preferences is taking place where raw trade off scores are used.

The authors end their paper with a discussion on the potential for future research. They pose three questions that need to be addressed (while noting some of these issues have already been explored):

1. What are the aspects of responses to valuation questions that we wish to filter out before the valuations are used to inform health care resource allocation questions?
2. What is the magnitude of the problem; that is, to what extent are the biases important or are they minor influences on valuation responses?
3. Where potentially significant problems exist, how might valuation data be adjusted to remove such biases?

Copies of the full working paper are available at [www.ihe.ca](http://www.ihe.ca)

### Contributions Welcome

1. The Auckland Branch welcomes contributions to **Inform** on subjects of interest to managers in the health and disability sector. Articles may be longer researched contributions, comments on current practice, or shorter notes and/or reviews. The range of possible subjects is very wide.
2. The maximum length is generally 3000 words. Shorter contributions are very welcome. Please include an e-mail address so authors can be contacted and a brief list of key points or an abstract.
3. Copy should be provided by e-mail or on a computer disk.
4. Contributions may be passed to the Editorial Committee for consideration.
5. Make submissions or contact the Editor for more information at [nzihm@xtra.co.nz](mailto:nzihm@xtra.co.nz)

**Standard Gamble:** A patient is offered a choice between two alternatives. The first alternative is treatment with two possible outcomes: either the patient is returned to normal health and lives an additional number of years, or the patient dies immediately. The second alternative has a certain outcome of chronic illness for a certain number of years. The probability of health and death is varied until the respondent's answer is indifferent between the two alternatives.

**Time trade off:** The patient is offered two choices: living for a number of years in perfect health or a number of years in some alternative state of ill health. The patient would of course choose the state of perfect health. The time period of perfect health is reduced until the patient is indifferent between the short period of perfect health and the longer period of ill health.

**Willingness to pay:** The value attached to the health care good for any patient (either in total or in terms of a change in that good) is represented by the maximum amount of money that the individual would be prepared to pay for the good (or change) to be made available.



New Zealand  
Institute of Health  
Management  
A Branch of the  
Australian College of  
Health Service  
Executives

For all inquiries re Branch  
activities or membership  
contact [nzihm@xtra.co.nz](mailto:nzihm@xtra.co.nz) or  
(09) 577 5477 Phone/Fax



## Up coming Seminars

March 4th  
@ N.Z. Blood Service  
5.30m. for 6 p.m.  
**Organisational  
Development of New  
Zealand Blood Services**  
Jenny Mitchell, Peter  
Flanagan, Judith McMorland

March 12th  
@ Minter Ellison, BNZ  
Tower, 125 Queen Street  
5.30 for 6 p.m.  
**Strategic Leadership**  
Colin Feek, Deputy Director  
General, Ministry of Health

**Non Members Welcome**  
Cost  
Members \$20  
Non Members \$30  
Light refreshments supplied

## Profile

David Rees began his career in health care in 1975“ working before the mast” cleaning pots and pans and being an orderly at the long since closed Cornwall Hospital. This lower level beginning has given him a career long understanding of the perspectives of junior staff. David took advantage of development programmes offered by the Auckland Hospital Board and its successors and rose through management levels.

After serving as Hospital Manager at Middlemore he spent the 90's as a consultant working with a range of businesses and organisations. He was attracted back to health management in 2002 when he took up his present position as Contracts Performance Manager for the Auckland District Health Board.

David is a long time member and servant of NZIHM. He was a member of the Auckland Branch executive from 1979 -1991, serving as secretary from 1981-85 and chairman from 1985-90 and a member of the National Council from 1987-92. On his return to health management he resumed service on the National Executive and Branch Committee.

David received scholarships from the NZIHM and A.D. Bronlund Trust for a study tour to Canada, United Kingdom, United Arab Emirates and Australia in 1986. He undertook further study tours to the United Kingdom and Europe in 1988, 1992 and 1996.

David has a Diploma in Business Management and Certificate in General Management from the Graduate School of Business, Auckland University and has been awarded a Fellowship from both the ACHSE and NZIHM

When he has spare time, David enjoys his family, gardening, films, music, tennis, golf, singing, cycling, skiing and contributes to community organisations, such as the Auckland branch of NZCCS where he was a Board member for 7 years.



## Prize Winner

Robyn Northey won the two bottles of Villa Maria 2000 Reserve Pinot Noir presented as part of the New Zealand Doctor newspaper health management promotion.

“I say this with my figures crossed behind my back as my boss who got the wine is currently in Montreal, presumably without my pinot noir prize!” said New Zealand Doctor editor Barbara Fountain

Barbara thanks all those who returned the questionnaires and hopes all members enjoyed their gratis copy of New Zealand Doctor.

## 2003 Conference

### Note your diaries now

Health New Zealand Conference & Exhibition 2003  
NZIHM continues its strategy of adding value for members by holding a combined conference with other healthcare special interest groups. Our 2003 Conference will be a combined conference with Health Informatics New Zealand.

Theme	Advancing Knowledge for Quality Healthcare
Date	6—7 August
Location	Hyatt Regency Auckland

More information in later editions of Inform and by special flyer



## Seminar date change

Our planned February seminar will now be held on March 4th. The March seminar will go ahead as scheduled on March 12th. Despite their closeness, both these events provide an excellent start to our 2003 seminar programme. We look forward to seeing you at both events